LESSON ASSIGNMENT SHEET

ADA SUBCOURSE 703-3	--Nike Hercules Launching Area.
LESSON 3	--Nike Hercules Missile Preparation.
CREDIT HOURS	--2.
TEXT ASSIGNMENT	--Attached memorandum.
MATERIALS REQUIRED	--None.
SUGGESTIONS	--See appendix for unfamiliar terms and abbreviations.

TRAINING OBJECTIVES

Listed below are the training objectives for this lesson. These objectives tell you what you should be able to do as a result of your studies. Therefore, you should be familiar with the objectives before you start to study.

When you have completed this lesson, you should be able to:

1. Recognize two Nike Hercules component shipping containers received in the assembly area and four Nike Hercules component shipping containers received in the service area and the contents of each.

2. Recognize two lifting devices, six types of hoist beams, two missile body supports, and four items of transpost equipment used for handling and transporting Nike Hercules missile components.

3. Recognize the items of servicing and test equipment used for Nike Hercules missile assembly operations and the purpose of each.

4. List the four major steps of assembly area operations and recognize the procedures for each.

5. List the five major steps of service area operations and recognize the procedures of each.

6. List the three major steps of the launching section operations and recognize the procedures for each; recognize the checks made during the daily missile inspection.

ATTACHED MEMORANDUM

(This memorandum consists of material approved for resident instruction in the US Army Air Defense School and conforms to current Department of the Army doctrine.)

Section I. MISSILE CONTAINERS AND ASSEMBLY AND TEST EQUIPMENT

1. SHIPPING CONTAINERS

a. General. The Nike Hercules missile components are shipped to the battery site in various containers. These containers are received at the assembly area and service area.

b. Assembly area. The components received at the assembly area are the forward body section, rear body section, and missile fins.

(1) The forward and rear body sections are received in a metal end-opening container pressurized with dry air (5 psi). It has a gross weight of approximately 4,600 pounds. The forward body section is packaged inverted in the rear body section (fig 3-1).

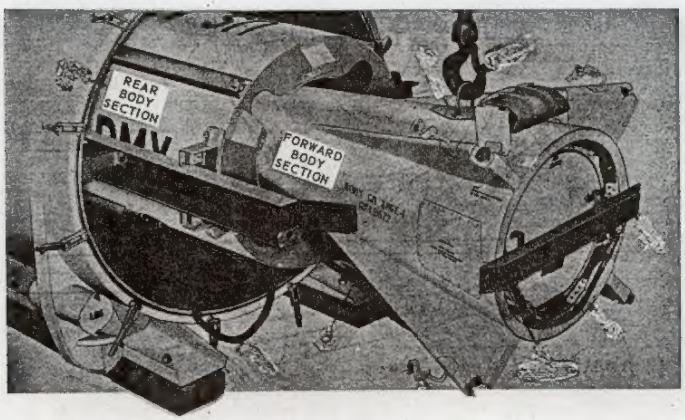


Figure 3-1. Body section container.

(2) The missile fins are received in a plywood box that has a gross weight of approximately 1,000 pounds (fig 3-2). Items in this box are four rear main fins, four forward main fins, and four elevons.

c. Service area. The components received in the service area are the warhead body section, missile rocket motor, rocket-motor cluster, and rocket-motor cluster fin assembly.

(1) The warhead body section is received in a metal end-opening container that has a gross weight of approximately 3,100 pounds (fig 3-3). The warhead body section contains an installed HE warhead.

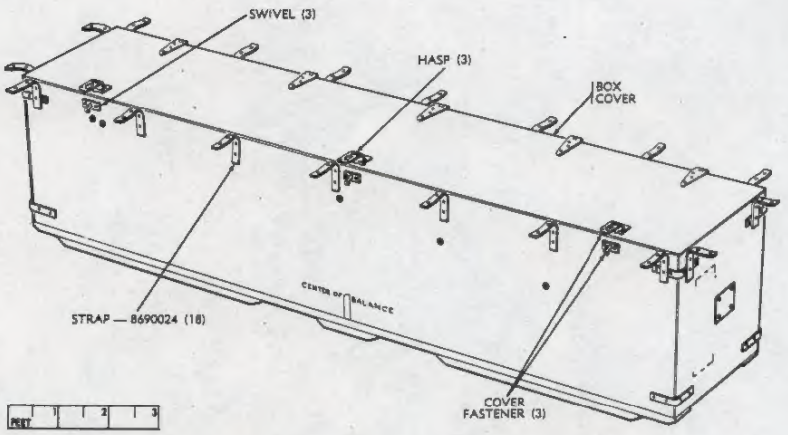


Figure 3-2. Missile fin container.

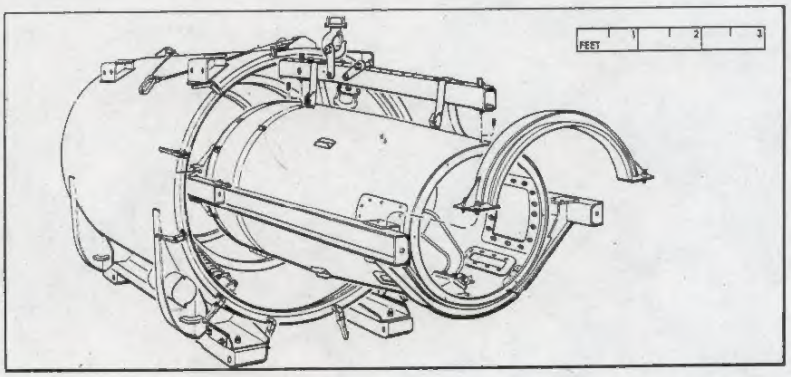


Figure 3-3. Warhead body section container.

(2) The missile rocket motor is received in a wooden container that has a gross weight of approximately 3,800 pounds (fig 3-4). The missile rocket-motor initiators also are in this container.

(3) The rocket-motor cluster is received in a wooden container that has a gross weight of approximately 6,500 pounds (fig 3-5). The four rocket-motor igniters are in a separate compartment at one end of the container. The rocket-motor igniter cable also is in this container.

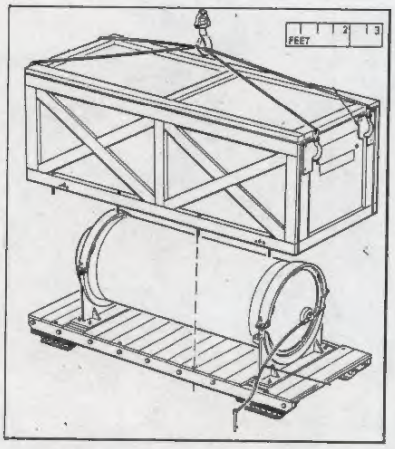


Figure 3-4. Missile rocket-motor container.

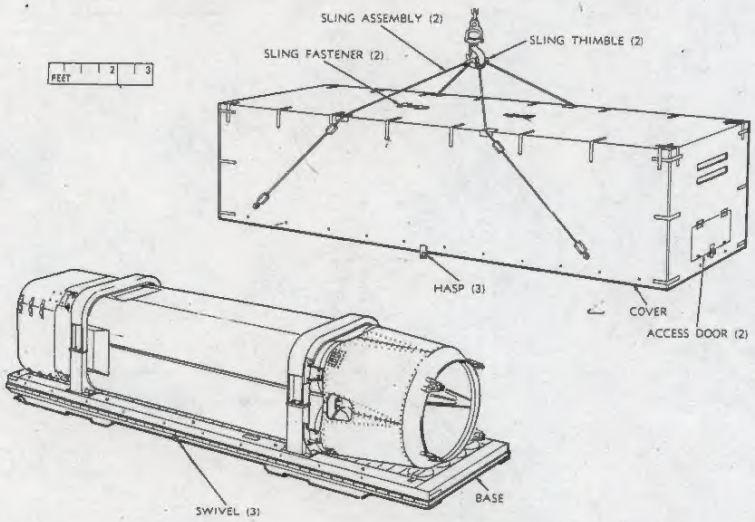


Figure 3-5. Rocket-motor cluster container.

(4) The rocket-motor cluster fin assembly is received in a wooden box that has a gross weight of approximately 700 pounds (fig 3-6). The box contains the four rocket-motor cluster fins.

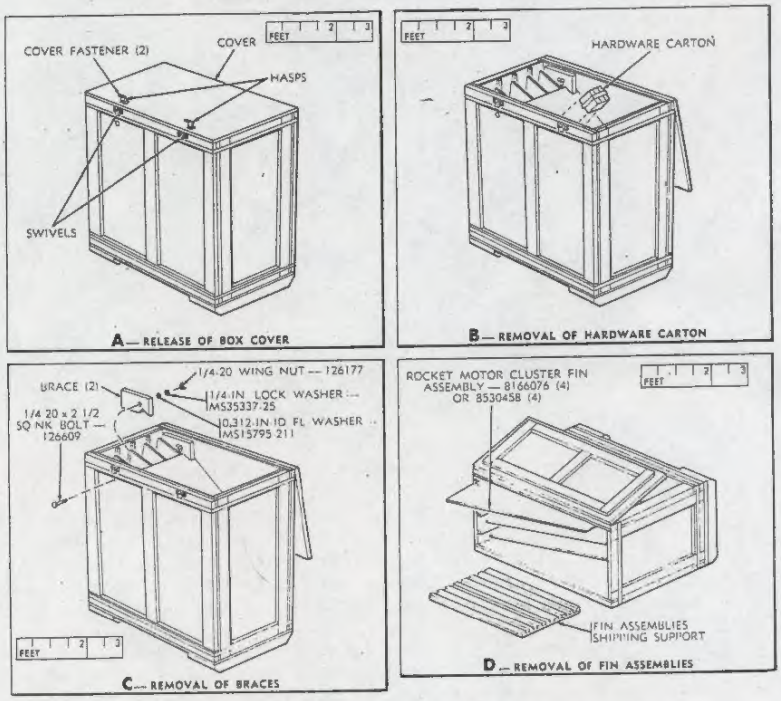


Figure 3-6. Rocket-motor cluster fin assembly container.

2. HANDLING EQUIPMENT

Missile assembly operations require equipment for supporting, loading, lifting, and transporting missile components. Handling equipment consists of lifting devices, hoist beams, supports, and transporting equipment.

a. Lifting devices. A portable hoisting unit (fig 3-7) is used for lifting the missile body sections, assembled missile body, or rocket-motor cluster. The portable hoisting unit is a hand-operated, chain-driven, A-frame hoist that has a capacity of 6,700 pounds. A wrecker crane may also be used for lifting missile components.

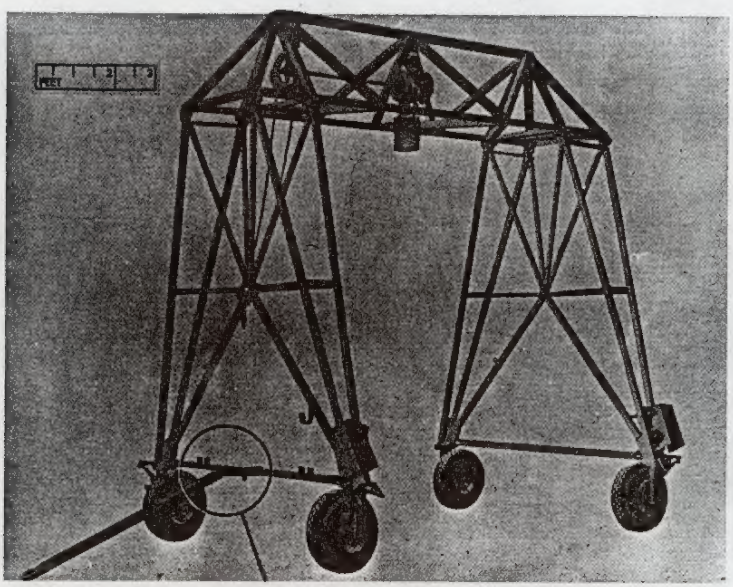


Figure 3-7. Portable hoisting unit.

b. Hoist beams. Hoist beams (fig 3-8) are required to support missile components for lifting operations. They include the rocket-motor cluster hoist beam (1 and 3), missile body hoist beam (2), rear body section hoist beam (4), warhead body section hoist beam (5), missile rocket-motor hoist beam (6), and rocket-motor hoist beam (for a single rocket motor of the rocket-motor cluster) (7). A reeling machine hoist beam (8) is also provided.

c. Supports. A handling ring and rear roll ring are used to support the assembled missile body on the missile body truck (fig 3-9). The handling ring, which consists of four segments, and the rear roll ring are attached to the rear body section when it is removed from its container. The rings rest on rollers on the forward and rear cradles of the missile body truck, thereby permitting the missile body to be rotated.

d. Transporting equipment. Transporting equipment is required to move missile components within and between the launching area subareas and to support them during assembly operations. Transporting equipment includes the missile body truck, forward body section truck, rocket-motor cluster truck, and missile body or rocket-motor cluster transporter adapter (fig 3-10).

(1) The missile body truck supports the missile body during assembly and testing. It provides a means for transporting the forward and rear body sections (temporarily joined) to the service area and the assembled missile body to the launching section area.

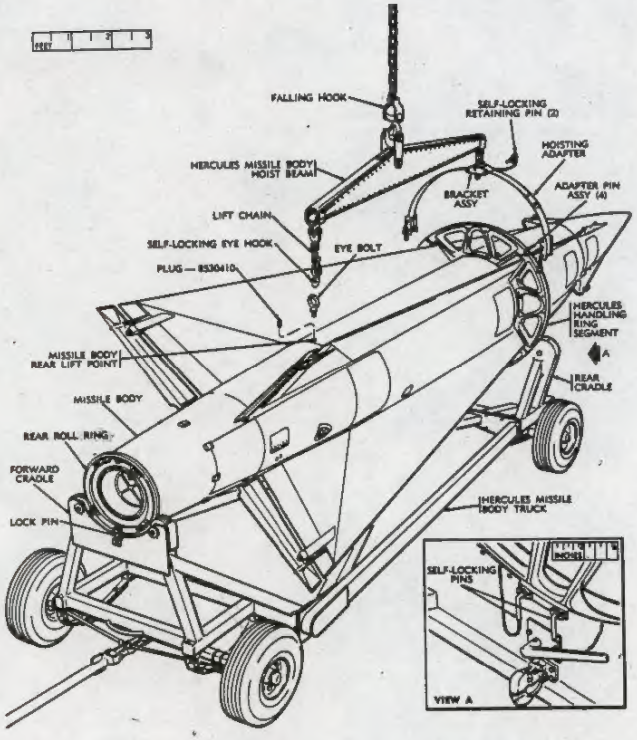


Figure 3-9. Missile body on missile body truck.

(2) The forward body section truck transports and supports the forward body section for assembly operations. It also provides temporary storage for the forward body section.

(3) The rocket-motor cluster truck supports the rocket-motor cluster for assembly operations and transports the rocket-motor cluster to the launching section area.

(4) The missile body or rocket-motor cluster transporter adapter supports the missile body or rocket-motor cluster for transport to the launching section area. The transporting vehicle is a low-bed trailer. This method of transport is required for movement over relatively rough terrain.

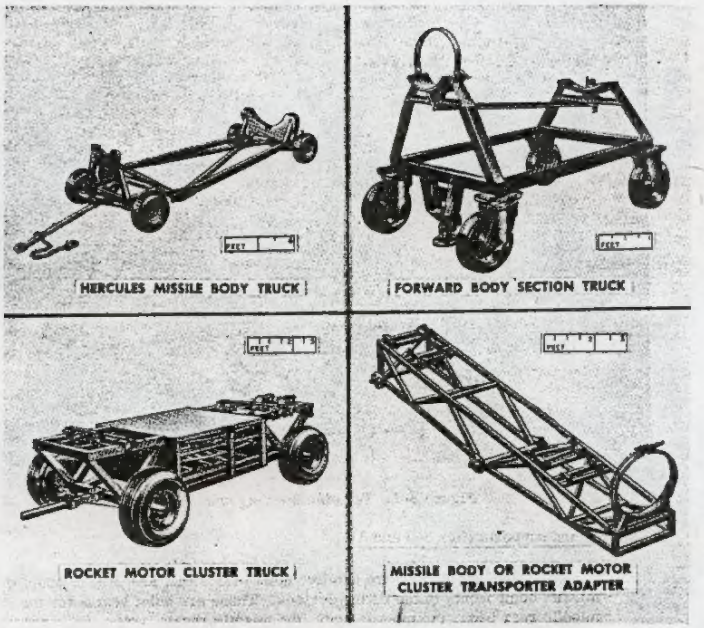


Figure 3-10. Transporting equipment.

3. SERVICING AND TEST EQUIPMENT

Servicing and test equipment used during missile assembly operations are listed below. In a mobile installation, these items are housed in the truck-mounted guided missile test station (fig 3-11).

a. Missile test set. The missile test set consists of an RF test set, electrical test set, and antenna coupler test adapter (fig 3-12).

(1) The RF test set generates RF signals that simulate those transmitted by the MTR. These signals are coupled to the transponder control group to test the response of the missile guidance system.

(2) The antenna coupler test adapter couples RF energy between the RF test set and the transponder control group. It is connected to antenna horns 2, 3, and 4.

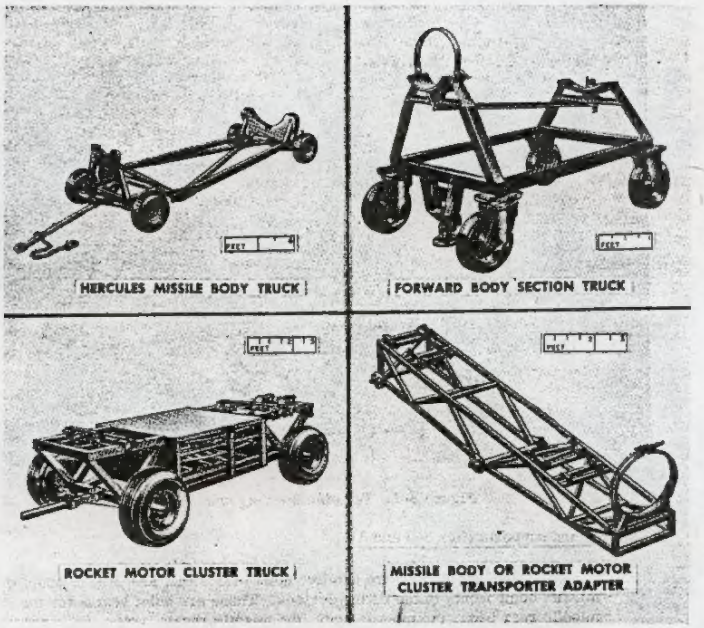


Figure 3-10. Transporting equipment.

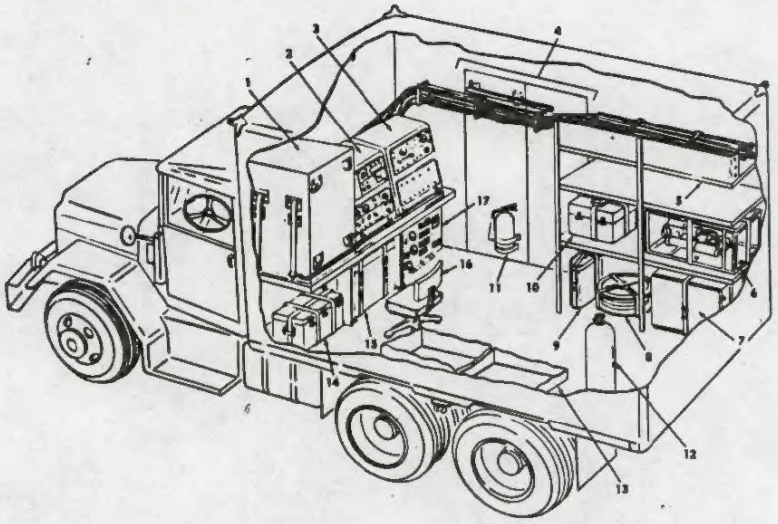
3. SERVICING AND TEST EQUIPMENT

Servicing and test equipment used during missile assembly operations are listed below. In a mobile installation, these items are housed in the truck-mounted guided missile test station (fig 3-11).

a. Missile test set. The missile test set consists of an RF test set, electrical test set, and antenna coupler test adapter (fig 3-12).

(1) The RF test set generates RF signals that simulate those transmitted by the MTR. These signals are coupled to the transponder control group to test the response of the missile guidance system.

(2) The antenna coupler test adapter couples RF energy between the RF test set and the transponder control group. It is connected to antenna horns 2, 3, and 4.



1—Not used
2—RF test set
3—Electrical test set
4—Cable boom and vehicular curtain installation
5—Cable and equipment stowage
6—Hydraulic pumping unit (HPU)
7—Adapter
8—Cable drum
9—Stagnation pressure pump
10—Portable oil fill and filter unit
11—Fire extinguisher (2)
12—Nitrogen bottle
13—Spare parts cabinet (2)
14—Portable air cooling unit
15—Final assembly tester
16—Operator's chair
17—Distribution box

Figure 3-11. Truck-mounted guided missile test station.

(3) The electrical test set consists of a test control unit and a test power control unit. The test control unit is a voltage measuring device. The test power control unit furnishes electrical power to the missile for checkout.

b. Power conversion unit. This unit supplies power to operate the missile HPU during checks and servicing at permanent sites. In mobile units, this power is provided from the mobile test station distribution box (fig 3-11 (17)).

c. Stagnation pressure pump. This pump (fig 3-11 (9)) tests the operation of the pressure transmitter. It is a hand-operated pump that provides air pressure or vacuum. It has a gage that measures the applied pressure or vacuum.

d. Portable oil fill and filter unit. This unit (fig 3-16 (10)) provides oil servicing of the missile hydraulic system.

e. Cooling unit. This unit provides air-cooling of the transponder control group during checks.

f. Air leakage test set. This set checks the transponder control group to insure that it is airtight.

g. Multimeter. This is a general-purpose multimeter for checking resistance and continuity of electrical and electronic components and for checking current, resistance, and voltage in ac or dc circuits.

h. Arming mechanism ohmmeter. This ohmmeter checks the resistance of rocket motor initiators and safety and arming devices and checks continuity of the guidance set and HPU squib batteries.

i. Electrical circuit test set. This set checks the initiator wiring harness for continuity and stray voltage.

j. Squib test set. This set checks internal resistance of the rocket-motor igniters.

k. Hygrometer. This measures the moisture content of the air supply used in servicing the HPU.

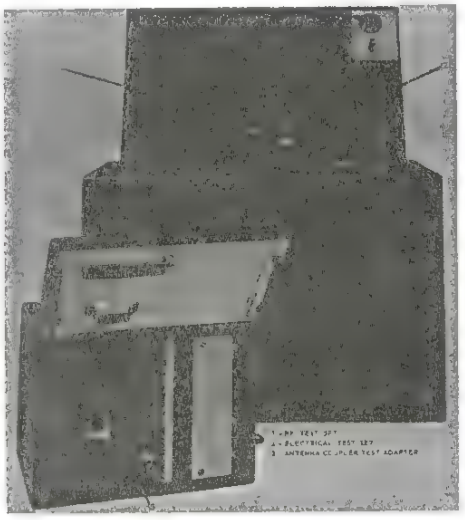


Figure 3-12. Missile test set.

4. ASSEMBLY AREA OPERATIONS

a. General. Operations performed in the assembly area are illustrated in figure 3-13. At the conclusion of these operations, the forward and rear body sections are transported to the service area.

b. Forward and rear body section unpackaging.

(1) Check the body section container for external damage and inspect the lead seals.

(2) Swing the access cover plates (fig 3-14 (5)) at each end downward and check the humidity indicator for a blue indication. Excessive moisture will cause the indicator card to turn pink indicating possible deterioration of components.

(3) Depressurize the container by removing the core from the air valve (fig 3-14 (2)) at each end.

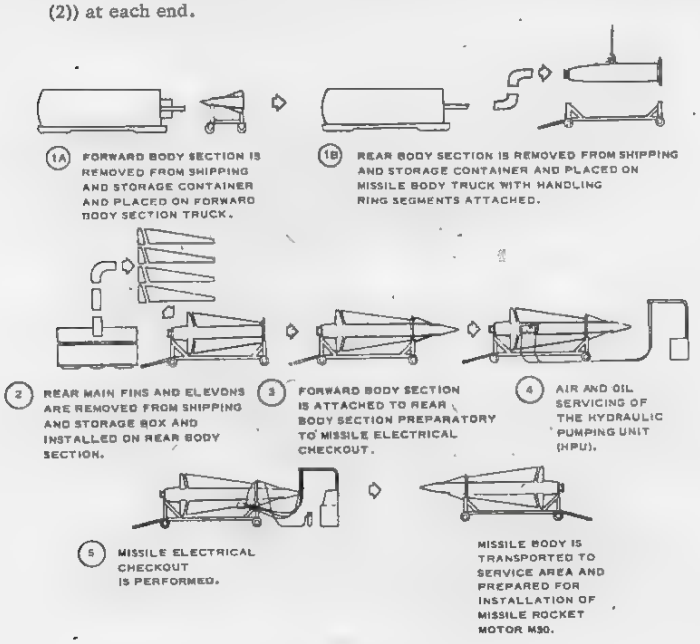


Figure 3-13. Assembly area operations flow chart.

(4) Remove the container cover, bolts, and brackets to permit sliding the body sections forward on the tracks (fig 3-1).

(5) Inspect contents for visible damage and check against the packing list.

(6) Using the portable hoisting unit, remove the forward body section and position it on the forward body section truck (fig 3-15).

(7) Attach the rear body section hoist beam to the rear body section and remove it from the container.

(8) Attach the handling ring segments and rear roll ring to the rear body section and position the rear body section on the missile body truck (fig 3-9).

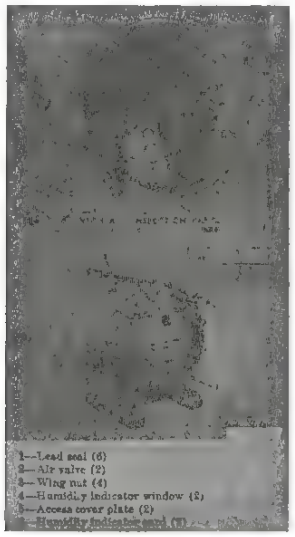
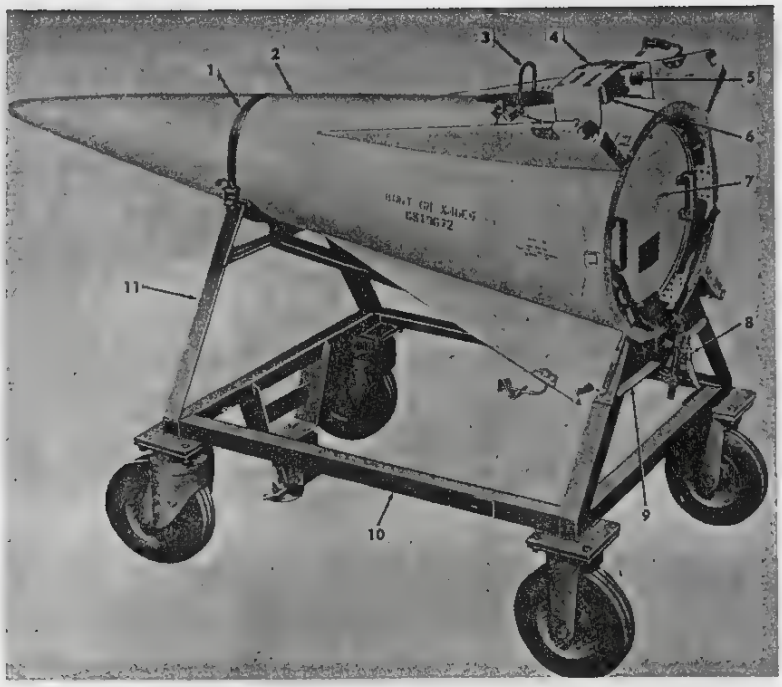


Figure 3-14. Body section container.

(9) Perform the safety and arming switch check. This check insures that the safety and arming switch (S31) will arm when the missile accelerates initially. Disconnect and remove the switch from the forward end of the missile motor section and mount it on a sling. Rotate the sling three times to arm the switch. A click is heard when the switch arms. If the switch does not arm, repeat this procedure. If the switch does not arm after the second attempt, reject it. Check the switch with the multimeter for a resistance indication of 1 ohms or less in both the SAFE and armed positions. If the indication exceeds 1 ohms in either position, reject it. Reinstall the switch in the missile motor section.



1. Holddown strap
2. Forward body section
3. Hoist
4. Fail-safe and timer bracket
5. Sequential timer
6. Fail-safe control
7. Transponder control group
8. Hand clamp
9. Rear cradle
10. Forward body section truck
11. Forward cradle

Figure 3-15. Forward body section on truck.

c. Rear main fin unpackaging and installation.

(1) Check the main fin for external damage and inspect the lead seals.

(2) Open the container, inspect for damage, and check the contents against the packing list.

(3) Remove and inspect the thermal battery pack, then replace it.

(4) Position the rear body section so that two fins can be installed horizontally and install two rear main fins.

(5) Rotate the rear body section 90° and install the remaining two fins.

(6) Install the elevons.

(7) Bolt the testing fixture to the front end of the rear body section, then bolt the forward body section to the testing fixture (fig 3-13(3)). Connect the transponder control group wiring harness in the rear body section to the fail-safe wiring harness and connect the fail-safe wiring harness to the fail-safe control and sequential timer on the forward body section (fig 3-15(5) and (6)).

d. HPU air and oil servicing. The missile is shipped to the user with the hydraulic system full and the accumulator depressurized.

(1) Connect a grounding strap from the missile frame to a good earth ground.

(2) Inspect the HPU, hydraulic lines, electrical wiring, and HPU mounting brackets.

(3) Connect the electrical test set and cooling unit to the transponder control group.

(4) Connect the air supply hose from the compressor or nitrogen bottle to the AIR FILL valve on the HPU service panel (fig 3-16(22)).

(5) Pressurize the HPU until the accumulator air pressure gage indicates ambient temperature plus or minus 25° F.

(6) Connect the HPU power cable from the power conversion unit or the mobile test station distribution box to the HPU indicator panel (fig 3-16(15)).

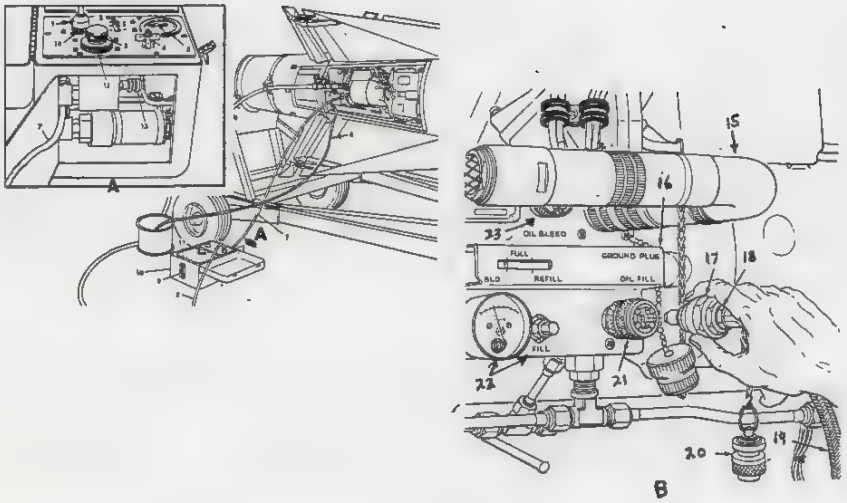
(7) Connect the hydraulic oil supply hose from the portable oil fill and filter unit to the OIL FILL valve (fig 3-16(21)). Connect the drain hose to the oil bleed port. Open the OIL BLEED valve (fig 3-16(23)) and drain the oil into a 2-1/2-gallon container. Do not reuse drained oil.

(8) Energize the oil fill and filter unit. Close the BYPASS valve (fig 3-16(4)) and the OIL BLEED valve when the oil stream is free of air bubbles.

(9) Turn the RELIEF VALVE knob (fig 3-16(3)) until the OIL PRESSURE gage (5) indicates 100 ±10 psi.

(10) Perform the HPU pressure switch check. This check insures that the firing circuit remains open until the HPU provides pressure for the hydraulic system.

(11) Drain and refill the HPU as necessary to insure a supply of clean oil completely free of air bubbles.



1. LINE POWER indicator lamp
2. OPERATE circuit breaker
3. RELIEF VALVE knob
4. BYPASS valve
5. OIL PRESSURE gage
6. Drain hose
7. Hydraulic oil supply hose
8. Power cable assembly
9. Oil level gage
10. Portable oil fill and filter unit
11. Reservoir filler cap
12. Manifold return port
13. Locknut
14. POWER connector
15. HPU power cable assembly
16. HPU indicator panel
17. Quick-disconnect fitting
18. Coupling nut
19. Hydraulic oil supply hose
20. Plug cap
21. OIL FILL valve
22. AIR PRESSURE gage and AIR FILL valve
23. OIL BLEED valve

Figure 3-16. HPU oil servicing.

e. Electrical checkout. After completing the HPU servicing, perform the following electrical checks:

(1) Transponder control group power supply. This check insures that the output voltages are correct after applying external power.

(2) Receiver sensitivity. This check insures that the missile receiver will be able to detect a minimum signal at maximum range through each receiving antenna.

(3) Missile transmitter. This check insures that the magnetron has sufficient power to transmit a response to the MTR at maximum range. Also, it insures that the missile will transmit a response only when the assigned battery code is incorporated in the pulse group transmitted by the MTR.

(4) Missile response time. This check measures the time from receipt of a properly coded pulse group to transmission of a response pulse.

(5) Fail-safe time. This check measures the time from loss of the missile by the MTR to self-destruction of the missile.

(6) Burst time. This check measures the time from receipt of a burst command to production of the burst pulse. Sequential timer operation also is a part of this check.

(7) Pitch, yaw, and roll servosystem operation. This check insures that the flight control instruments operate correctly, that the elevons return to their center position when a zero command is received, and that the flipover relay circuits operate correctly. The HPU is operated during this check.

(8) Pressure transmitter. This check determines the response of the elevons to pressure and vacuum applied to the pressure transmitter by the stagnation pressure pump.

(9) Precise command. This check insures that the voltage outputs of the steering amplifiers are proportional to the magnitude of the commands applied by the RF test set.

(10) Internal operation. The inertia switches in the transponder control group are operated manually and indications are observed on the test power control unit of the electrical test set.

(11) Missile heater circuit. This check insures proper continuity in the missile heater circuits.

(12) Air-leakage. The transponder control group is pressurized (16 to 20 psi) using the air leakage test set. After 3 minutes the pressure indicator on the test set should indicate a pressure loss of no more than 1 psi. This check insures a tight seal to prevent arcing of electrical components at high altitudes.

5. SERVICE AREA OPERATIONS

a. General. Operations performed in the service area are illustrated in figure 3-17. At the conclusion of these operations, the missile body and rocket-motor cluster are transported on their respective trucks to the launching section area.

b. Missile rocket motor unpackaging and installation. Certain precautions must be taken and quantity-distance safety criteria must be observed when handling explosives. These are contained in pertinent technical manuals and unit SOP's.

(1) Remove the forward body section from the testing fixture assembly and place it on the forward body section truck. Remove the testing fixture assembly. Remove the blast tube shipping support, the two thermostats, and initiator wiring harness from the forward end of the missile motor section.

(2) Unpackage the missile rocket motor and inspect the propellant grain for cracks.

(3) Attach the missile rocket-motor hoist beam and, using the portable hoist unit, raise the missile rocket motor and aline it with the missile motor section (fig 3-17(6)).

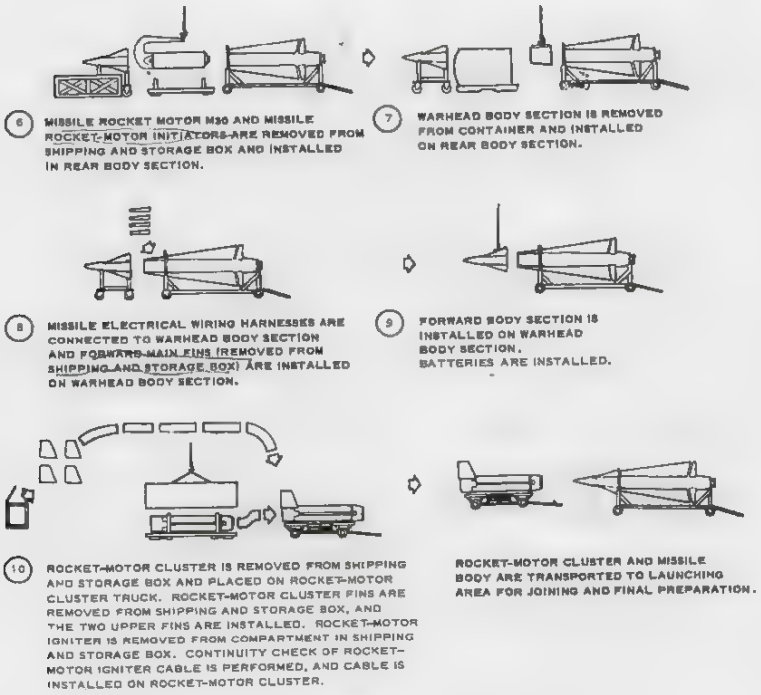


Figure 3-17. Service area operations flow chart.

(4) Roll the missile body truck forward until the missile rocket motor is properly positioned within the rear body section.

(5) Bolt the rear end of the missile rocket motor to the motor mounting ring and clamp it to the blast tube.

(6) Remove the missile rocket-motor hoist beam.

(7) Install the closure plate and ring around the blast tube nozzle.

(8) Install the missile rocket-motor head heater and initiator wiring harness.

(9) Replace the two thermostats on each side of the missile motor section.

c. Warhead body section unpackaging and installation.

(1) Inspect the warhead body section container (fig 3-3) for external damage and humidity, depressurize the container, remove the container end cover, and inspect and check the contents as in missile body unpackaging (para 4b(1) to (5)).

(2) Roll the components out on the movable tracks and attach the warhead body section hoist beam.

(3) Using the portable hoist unit, bolt the warhead body section to the rear body section (fig 3-17(7)).

(4) Install the transponder control group and warhead wiring harnesses. These run from the missile distribution box in the equipment section along the outside of the missile body under rear and forward main fins Nos. 3 and 4, respectively, and through openings at the forward end of the warhead body section.

(5) Remove the fail-safe control and sequential timer from the forward body section and install them at the front end of the warhead body section.

(6) Connect the fail-safe control wiring harness to the transponder control group wiring harness, the safety and arming device mounting plate, the fail-safe control, and the sequential timer.

(7) Bolt the four forward main fins to the warhead body section (fig 3-17(8)) insuring that fins Nos. 3 and 4 properly cover the wiring harnesses.

d. Installation of the forward body section.

(1) Using the portable hoisting unit, lift the forward body section from the forward body section truck and join it to the warhead body section (fig 3-17(9)).

(2) Connect the transponder control group wiring harness (emerging from the warhead body section) to the transponder control group connector in the forward body section.

e. Battery installation.

(1) Test the guidance set squib battery using the multimeter and arming mechanism ohmmeter. This test insures that the squib activation circuit is operational. Install the battery in the equipment section. If the missile has a nuclear warhead, install two additional squib batteries in place of the two dummy batteries.

(2) Test and install the HPU squib battery in the equipment section.

f. Rocket-motor cluster unpackaging and assembly.

(1) Uncrate and inspect the rocket-motor cluster fins.

(2) Remove the top of the rocket-motor cluster shipping container and inspect the rocket-motor cluster. Remove the four rocket-motor igniter containers and store them in the igniter storage area. Remove the plastic shipping plug at the head of each rocket motor and inspect the interior. Replace the plastic shipping plugs.

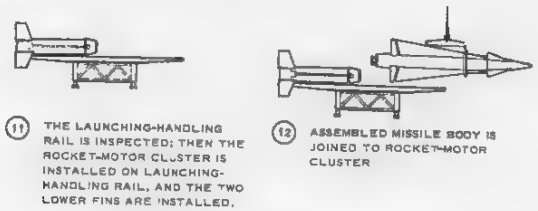
(3) Using the rocket-motor cluster hoist beam and portable hoisting unit, lift the rocket-motor cluster from its shipping container and place it on the rocket-motor cluster truck (fig 3-17(10)).

(4) Install the two upper rocket-motor cluster fins and stow the remaining two fins in the rocket-motor cluster truck fin storage racks (fig 3-10).

(5) Using the multimeter, check the rocket-motor igniter cable assembly for continuity.

6. LAUNCHING SECTION OPERATIONS

a. General. Operations performed in the launching section area are illustrated in figure 3-18. Upon completion of final preparation, the missile is stored as a combat-ready missile. Thereafter, the missile is inspected daily.



(11) THE LAUNCHING-HANDLING RAIL IS INSPECTED; THEN THE ROCKET-MOTOR CLUSTER IS INSTALLED ON LAUNCHING-HANDLING RAIL, AND THE TWO LOWER FINS ARE INSTALLED.

(12) ASSEMBLED MISSILE BODY IS JOINED TO ROCKET-MOTOR CLUSTER

(13) FINAL PREPARATION OF NIKE HERCULES MISSILE.

Figure 3-18. Launching section operations flow chart.

b. Launching-handling rail inspection and preparation.

(1) Inspect and perform a continuity check of the launching-handling rail cables.

(2) Position the rail at the end of the loading rack.

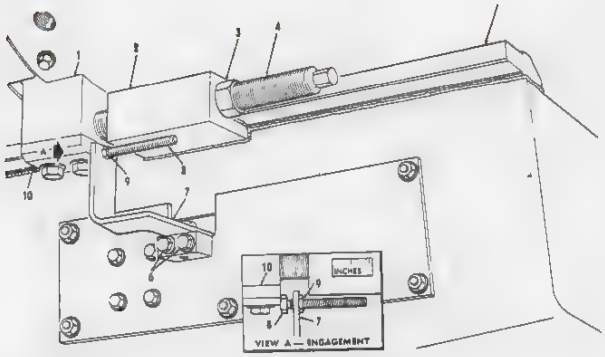
(3) Retract the stop bolts and missile-away switch adjusting bolt to prevent damage to these components during the joining process (fig 3-19).

c. Missile body and rocket-motor cluster joining.

(1) Attach the rocket-motor cluster hoist beam, lift the rocket-motor cluster from its truck, and position it on the rear end of the launching-handling rail against the stop bolts (fig 3-18(11)).

(2) Attach the forward and rear slipper assemblies and rail bars to secure the rocket-motor cluster to the launching-handling rail (fig 3-20).

(3) Turn the elevon lock forks (fig 3-21) to the rear to prevent damage to the elevons.



1 - Rear slipper
2 - Stopblock (2)
3 - Locknut (2)
4 - Stop bolt (2)
5 - Launching-handling rail
6 - Hex-hd bolt (2)
7 - Missile-away switch arm
8 - Arm adjusting setscrew or arm adjusting bolt
9 - Locknut
10 - Rear retaining rail bar

Figure 3-19. Stop bolts and missile-away switch.

(4) Attach the missile body hoist beam to the missile body, lift the missile body from its truck, remove the lower handling ring segment and rear roll ring, and position the missile body over the launching-handling rail so that the index pin (fig 3-21) is alined with the index slot of the rocket-motor cluster.

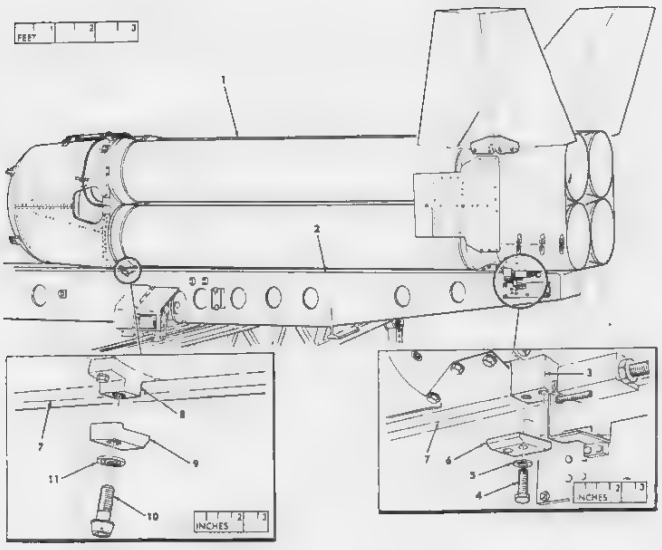
(5) Lower the missile body onto the launching-handling rail, guiding it into the thrust ring assembly so that the index pin enters the index slot and the T-hook adapter (at the bottom front of the missile body) engages the yoke assembly holder as the yoke assembly is pivoted upward. Insert the shear bolt in the yoke assembly (fig 4-6).

(6) Adjust the stop bolts (fig 3-19) until the missile body T-hook adapter is firmly seated in the holder.

(7) Move the elevon lock forks forward to engage the elevons.

(8) Remove the clamp that secures the umbilical cables to the missile body and connect the cables to the connectors on either side of the launching-handling rail (fig 3-22). Pull the hook latch up and engage with the shear plug (fig 4-4).

(9) Install the two lower rocket-motor cluster fins.



1. Rocket-motor cluster
2. Launching-handling rail
3. Rear slipper
4. Hex-hd screw
5. Washer
6. Rear retaining rail bar
7. Launching-handling rail track
8. Forward slipper assembly
9. Forward retaining rail bar
10. Int-wrenching bolt or hex-hd bolt
11. Washer

Figure 3-20. Rocket-motor cluster on launching-handling rail.

d. Missile final preparation.

(1) Connect the electrical wiring harness from the missile distribution box to the batteries. Check the connections to the dummy batteries (missiles with HE warheads). Connect the HPU wiring harness to the HPU squib battery (fig 2-4).

(2) Check the safety and arming switch (S31) for a SAFE indication.

(3) Using the electrical circuit test set, perform the stray voltage and continuity check of the initiator wiring harness.

(4) Using a portable barricade and the arming mechanism ohmmeter, inspect and perform the continuity check of the rocket-motor initiators.

(5) Install the initiators in the rocket-motor gas generator (fig 2-3).

(6) Connect the initiator wiring harness to the two initiators on the gas generator.

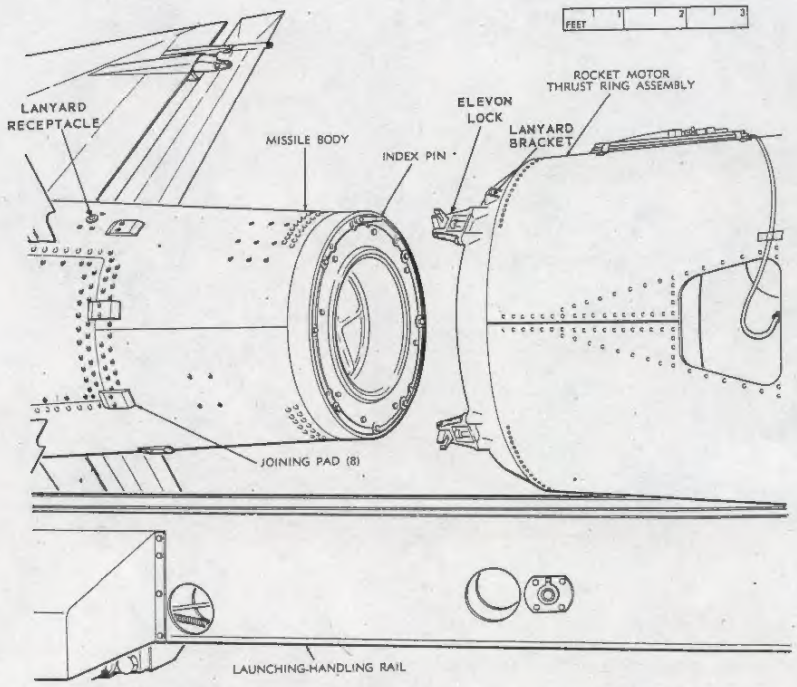


Figure 3-21. Missile body and rocket-motor cluster alinement.

(7) Connect the propulsion arming lanyard to the trigger operating plug in the actuator section and to the lanyard mounting bracket on the rocket-motor cluster thrust ring assembly (fig 3-21).

(8) Adjust the missile-away switch on the launching-handling rail (fig 3-19) by turning the adjusting bolt toward the rear until a click is heard. Then turn the bolt an additional one-half turn and tighten the locknut.

(9) Using the portable barricade and squib test set, inspect and perform a continuity check of the igniters (fig 3-23). Remove the plastic shipping plugs and gaskets from the end of each rocket motor in the rocket-motor cluster and immediately install the igniters.

(10) Connect the rocket-motor igniter cable assembly to the igniters, making sure that the shorting connector is installed at the end of the cable. Install the cable assembly in the launching-handling rail snubber channel (fig 3-24).

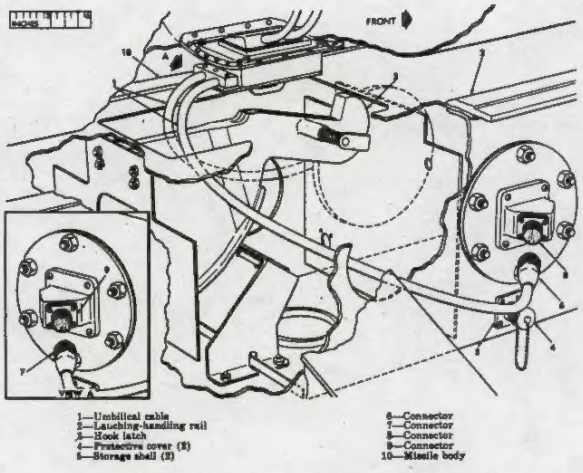


Figure 3-22. Missile umbilical cable connections.

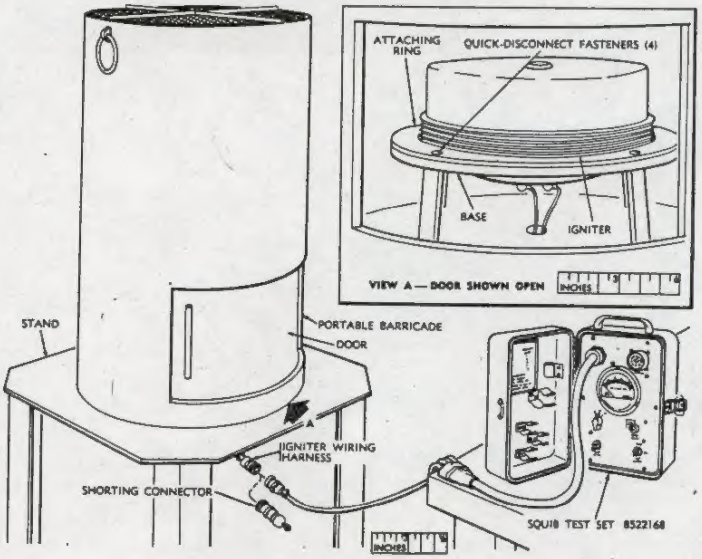


Figure 3-23. Test of rocket-motor igniter..

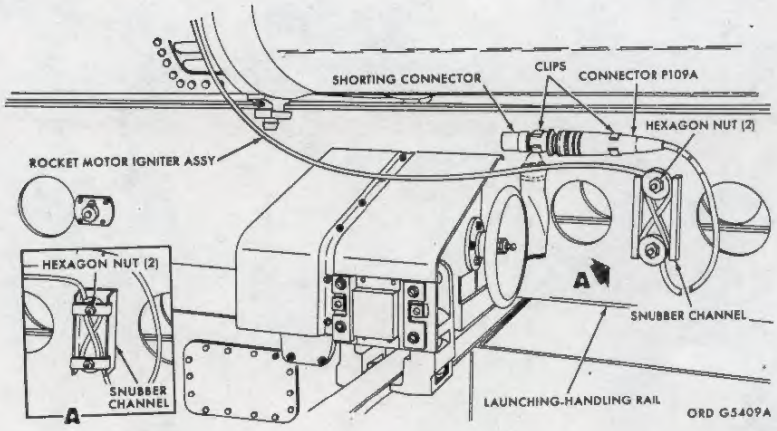


Figure 3-24. Igniter cable assembly stowed in snubber channel.

(11) Remove the bails from the two safety and arming devices and check them for a safe (white) indication. Using the arming mechanism ohmmeter and portable barricade, perform the electrical test for noncontinuity (open circuit). Install the safety and arming devices in their receptacles at the forward bottom portion of the warhead body section (fig 3-25).

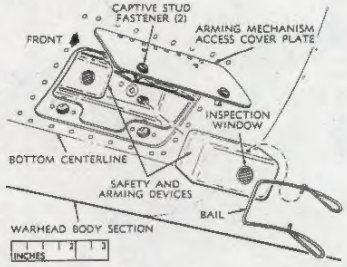


Figure 3-25. Safety and arming device (M30A1).

(12) Inspect and aline the ram pressure probes.

e. Daily inspection. Daily inspection of the missile insures that it will remain combat-ready. The following checks are made:

(1) Check the missile rocket-motor safety and arming switch for safe (green) indication. Check the safety and arming devices in the warhead section for a safe (white) indication.

(2) Check the missile skin for dents, scratches, and punctures. Check the access covers for proper fitting, presence of screws, and tightness of screws. Check the missile skin for oil leaks.

(3) Check the ram pressure probes for alinement, damage, and cleanliness.

(4) Check the antennas for cleanliness, tightness, and correct frequency range.

(5) Check the guidance set cooler for proper installation and that the pipe is in the down (firing) position.

(6) Check the HPU for an air pressure gage temperature reading of ambient temperature plus or minus 25° F. and a hydraulic reservoir gage reading of FULL. The inspection access door remains open until prior to firing.

(7) Check elevons and elevon locks for proper installation.

(8) Check the rail release assembly for proper engagement of the T-hook adapter and installation of the shear bolt.

(9) Check for proper installation of the umbilical assembly.

(10) Check for proper installation of the propulsion arming lanyard.

(11) Check the igniter cable assembly for proper connection to all four igniters, installation of the shorting connector, and proper installation in the snubber channel.

(12) Check the missile-away switch for proper adjustment.

(13) Check that the stop bolts are tight against the rocket-motor cluster slippers (fig 3-19).

(14) Check the rocket-motor cluster fins for damage and for presence and tightness of bolts and screws.

REQUIREMENT. Solve the following multiple-choice exercises and record your solutions on the optical scan answer form. All exercises are of equal weight (5 points). Select the one CORRECT choice. If more than one choice is correct, select the BEST one.